

REMARKS

The drawings are objected to because figures 7 and 8 lack any corresponding reference characters.

The abstract of the disclosure is objected to because it refers to the claims.

Claims 1-32 are pending in the application.

Claims 13, 31, and 32 are withdrawn from consideration.

Claims 18-21 are allowed.

Claims 1-3, 6-9, 11, 12, 14-16, and 20-30 are rejected.

Claims 4, 5, 10, and 17 are objected to.

Claims 11, 15, and 22-30 are rejected under 35 U.S.C. § 112.

Claims 1-3, 6, 12, 14-16, and 22-27 are rejected under 35 U.S.C. § 102(e) as being anticipated by Nakagawa, et al (US Patent No. 6,519,148).

Claims 7-9 and 28-30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakagawa, et al.

Claims 11 and 15 are cancelled and claim 22 is amended. Claims 1-10, 12, 14, 16-30 remain in the application after entering this amendment.

The applicants request reconsideration and allowance of the remaining claims.

Drawing Objections

The drawings are objected to because figures 7 and 8 lack any corresponding reference characters. The figures are amended by adding reference characters consistent with the specification, thereby obviating the objection.

Specification Objections

The abstract of the disclosure is objected to because it refers to the claims. The abstract is amended to remove the objected portion.

Claim Rejections – 35 U.S.C. § 112

Claims 11, 15, and 22-30 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11 and 15 are cancelled. Claim 22 is amended to remove the phrase “relatively” objected by the Examiner, thereby obviating the objection for claim 22 and associated dependent claims 23-20.

Claim Rejections – 35 U.S.C. § 102

Claims 1-3, 6, 11, 12, 14-16, and 22-27 are rejected under 35 U.S.C. § 102(e) as being anticipated by Nakagawa, et al (US Patent No. 6,519,148). The applicants traverse the rejection for the following reasons.

Claim 1 recites *a biasing member disposed between the two heat exchange members and configured to provide a force that holds the two heat exchange members against the packages of the semiconductor module*. The Examiner alleges that Nakagawa discloses an apparatus or notebook computer including two heat exchange members (cooling tube 12) disposed in the body part 1 and the display part 2, respectively, as shown in figure 2, for example, and also including a connection member or hinge and a biasing member or spring, the latter as shown in figure 9, for example. Nakagawa’s figure 9 shows a hinge through which the tubes 12 disposed in the body part 1 and display part 2 are joined. Nakagawa discloses that “according to the structure shown in FIGS. 8 and 9, when the display part is rotated, the tube is prevented from receiving a rotational load, and the tube is prevented from being rotated together with the display part.”¹ The hinge of figure 9, thus, prevents the tube 12 from being rotated together with the display part. Nakagawa’s hinge of figure 9, however, does not provide a *force that holds* the two cooling tubes 12 against the notebook computer, as would be required by claim 1.

Claim 1 additionally recites *portions of the two heat exchange members are configured to protrude above the semiconductor module*. As discussed above, the Examiner alleges that Nakagawa discloses an apparatus or notebook computer including two heat exchange members (cooling tube 12) disposed in the body part 1 and the display part 2, respectively. Nakagawa’s cooling tube 12, however, does not protrude above the notebook computer, as would be required by claim 1.

Claim 1 also recites *two heat exchange members configured to be placed on both sides of a semiconductor module*. Heat exchange members 100 and 200, for example, are placed on *both sides* of a semiconductor module 500 in the exemplary embodiment of figure 6. The Examiner

¹ Nakagawa, column 9, lines 11-14.

alleges that Nakagawa discloses an apparatus or notebook computer including two heat exchange members (cooling tube 12) disposed in the body part 1 and the display part 2, respectively.

Nakagawa's cooling tube 12, however, is not placed on *both sides* of a semiconductor module. Rather, Nakagawa discloses the tube 12 disposed in the body part 1 and the display part 2.

For at least these reasons, claim 1 is in condition for allowance, along with associated dependent claims 2-3, 6-9, and 11, which recite additional novel features.

Claim 12 recites *an elastic member structured to provide a force that draws the first and second contacting portions toward each other*. The Examiner alleges that Nakagawa's cooling tube 12 includes a connection member or hinge and a biasing member or spring, the latter as shown in figure 9. As discussed with respect to claim 1, Nakagawa's hinge of figure 9 prevents the tube 12 from being rotated together with the display part. Nakagawa's hinge of figure 9, however, does not provide a force that that draws the two cooling tubes 12 (disposed in the body part 1 and display part 2, respectively) toward each other, as would be required by claim 12.

For at least this reason, claim 12 is in condition for allowance, along with associated dependent claims 14 and 15, which recite additional novel features.

Claim 16 recite *the first heat dissipating portion is configured to protrude above the semiconductor module*. As discussed with respect to claim 1, Nakagawa fails to disclose any such limitation. Claim 16 also includes similar limitation about the *second heat dissipating portion* as well, which Nakagawa fails to disclose.

Claim 16 additionally recites *a biasing member disposed between the first and second heat exchange members to provide a force that draws the first and second contacting portions toward the surface*. As discussed with respect to claim 1, Nakagawa's hinge of figure 9 fails to provide any such *force*.

Claim 16 additionally recite *the semiconductor module that is inserted between the first and the second contacting portions*. Nakagawa's cooling tubes 12 are disposed in the body part 1 and display part 2. Nakagawa, however, does not disclose any semiconductor module that is inserted between the two cooling tubes, as would be required by claim 16.

For at least these reasons, claim 16 is in condition for allowance.

Claim 22 recites *a clamp structured to force a portion of the thermally conductive substrate adjacent to a top surface of one or more heat generating components that are attached to a circuit board*. As discussed with respect to claim 1, Nakagawa fails to disclose a clamp structure to *force* the cooling tube 12 adjacent to a surface of heat generating components of the notebook computer. For at least this reason, claim 22 is in condition for allowance, along with associated dependent claims 23-30, which recite additional novel features.

Allowable Subject Matter

Claims 4, 5, 10, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim. In view of the above discussion, the applicants believe that the associated independent claims are allowable.

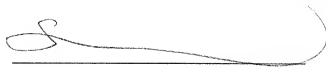
Claims 18-21 are allowed.

Conclusion

For the foregoing reasons, reconsideration and allowance of the remaining claims of the application as amended is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.

A handwritten signature in dark ink, appearing to read 'Hosoon Lee', with a long, sweeping horizontal stroke extending to the right.

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